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## Work-Related Health Limitations, Education, and the Risk of Marital Disruption

*Despite progress in identifying the covariates of divorce, there remain substantial gaps in the knowledge. One of these gaps is the relationship between health and risk of marital dissolution. I extend prior research by examining the linkages between work-related health limitations and divorce using 25 years of data (N = 7919) taken from the 1979 National Longitudinal Study of Youth (NLSY-79). I found that work-related health limitations among husbands, but not wives, were linked to an increased risk of divorce. In addition, I found that this relationship was moderated by education in a fashion that varies according to race. For White men, education exacerbated the effect of health limitations, but for Black men, education attenuated the effects of work-related health limitations.*

Over the past 30 years, social scientists have expended considerable effort in ascertaining the determinants of marital dissolution (Amato, 2000; Becker, Landes, & Michael, 1977; Bumpass, Martin, & Sweet, 1991; Teachman, 2002; White, 1990). Although a number of robust findings have been identified, there remain substantial gaps in our knowledge of the covariates of divorce. One of these gaps is health. Very little research has been conducted on the relationship between health and risk of

marital dissolution, despite strong theoretical rationales for such a link to occur. In this article, I extend prior research by examining the linkages between work-related health limitations and divorce using 25 years of data taken from the 1979 National Longitudinal Study of Youth (NLSY-79). Recognizing that the role played by health in marriage may vary according to gender, education, and race, I examined how those variables moderated the link between health and marital dissolution.

### *Prior Literature*

Literature that has linked health to the risk of marital disruption is limited. One body of research has linked health to marital quality, however (Booth & Johnson, 1994; Burman & Margolin, 1992; Kiecolt-Glaser & Newton, 2001; Yorgason, Booth, & Johnson, 2008). This research found that poor health tends to deteriorate marital quality. In turn, other research has linked poor marital quality to an increased risk of divorce (Bulanda & Brown, 2006; Schoen, Astone, Rothert, Nicola, & Kim, 2002). The inference is, therefore, that poor health stimulates an increased risk of divorce by decreasing marital quality.

Even though a relatively large body of literature has linked marriage to subsequent health and health-related behaviors (Ross, Mirowsky, & Goldstein, 1990; Umberson, 1987; Wade & Pevalin, 2004; Williams & Umberson, 2004; Wu & Hart, 2002), only a handful of studies have directly assessed the impact of health on the risk of subsequent

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marital dissolution. Some of this research has been extremely focused, linking specific health concerns such as cancer (Syse & Kravdal, 2007) and HIV status (Porter et al., 2004) to an increased risk of divorce. The focus on serious and chronic health care conditions makes it difficult to generalize these results to more general health conditions, however. Fu and Goldman (2000) linked health-related indicators such as height, weight, smoking, and alcohol consumption to marital dissolution but included no direct indicators of health. Waldron, Hughes, and Brooks (1996) showed a relationship between a health problems scale and change in marital status, but their results made it difficult to separate the effects of health on marriage propensity from those on divorce risk. Using data taken from the NLSY-79, I expand on the existing literature by investigating the association between a consistently measured health indicator tapping limitations in ability to work for pay and risk of marital dissolution covering 25 years of potential marital experience.

### *Theoretical Orientation*

A number of theories concerning divorce rely on some notion of exchange of expressive and instrumental goods and services between husbands and wives (Amato, 2000; Becker, Landes, & Michael, 1977; Kelly, Fincham, & Beach, 2003; Levinger, 1979; Oppenheimer, 1994, 1997). The assumption is that marriage is beneficial because mutual interdependence generated by marital exchanges increases the well-being of spouses beyond that which would be achieved if they were not married. Accordingly, anything that diminishes the real or perceived gains to marriage or increases the benefits associated with being single or with an alternative partner, such as the poor health of a spouse, constitutes a risk factor for marital disruption.

Work-related health limitations may operate on several dimensions of a marriage with a net overall negative influence on marital exchanges. For one, work-related health limitations may act to reduce family income, thereby increasing financial stress pressing on the couple. This economic stress is likely exacerbated by the heavy costs of paying for health care. For another, poor health, even if it is limited to ability to work, may also act to reduce

physical and emotional intimacy, as well as the extent of shared activities and the fraction of household duties that can be accomplished by the unhealthy partner, which creates additional stress. In addition, the unhealthy partner may be subject to a reduction in self-esteem and an increase in depression, thus threatening the emotional bond between spouses. As Karney and Bradbury (1995) posited (see also McCubbin & Patterson, 1982), stressful events and poor adaptive strategies (as indicated by lower self-esteem, depression, and a weakened emotional bond) can create a crisis that threatens marital quality and stability.

For most couples, negative effects are increased by the fact that any component of poor health is difficult to predict and, as a consequence, alters the marital relationship that was likely constructed when both partners were healthy and thus based on a different set of assumptions about marital life. The emotional and physical division of labor between spouses is disrupted, forcing a renegotiation of marital exchanges, which in turn may lead to instability (Brines & Joyner, 1999). These shifts in the marital relationship may be perceived as weakening the gains to marriage on the part of the healthy partner and as increasing the potential gains from being single or forming a different union. On the basis of those arguments, I make the following hypothesis:

H1: Couples in which at least one spouse experiences a work-related health limitation will be more likely to dissolve their marriage.

### *Gender as a Moderator*

Although poor health afflicts both husbands and wives, there is evidence to suggest that the effect of negative health outcomes on marital stability is greater for husbands than for wives. For example, Yorgason et al. (2008) found that the health declines of husbands were more consequential for marital quality than were the health declines of wives. In another example, Fu and Goldman (2000) reported that the health-related behaviors and characteristics of men were more substantially related to the risk of divorce than were the same behaviors and characteristics of women. The focus on work-related health limitations suggests several reasons these health limitations

are more consequential for husbands than for wives.

First, because husbands generally earn more than their wives, their inability to work for pay will often result in a larger reduction in family income, thereby creating more financial stress for the family. Second, the extent to which a traditional division of labor is practiced in a marriage may make men more susceptible to greater feelings of frustration and anger when their health limits their ability to provide support for their family (Beckham & Giordano, 1986; Gagnon, Hersen, Kabacoff, & Van Hasselt, 1999). Third, the traditional caregiving role that many women assume often means that they experience more stress when providing care because of role overload, especially when they are giving simultaneously to different family members (e.g., spouse, children, elderly parents) (Allen, Blieszner, & Roberto, 2000; Loomis & Booth, 1995). Thus, women tend to be more depressed than men when providing care (Yee & Schulz, 2000) and are more likely to report feeling burdened by their caregiving responsibilities (Haley, LaMonde, Han, Burton, & Schonwetter, 2003). Fourth, husbands are generally more satisfied with their marriages than are wives (Acitelli & Antonucci, 1994; Corra, Carter, Carter, & Knox, 2009; Flowers, 1991), and wives are more sensitive than husbands to issues and problems in marital interaction (Levenson, Carstensen, & Gottman, 1993; Vinokur & Vinokur-Kaplan, 1993). As such, women may be more sensitive to changes in emotional and intimate exchanges generated as the result of health limitations experienced by a spouse. Indeed, Kalmijn and Poortman (2006) reported, "Women more often take the initiative to divorce, [and] many social and economic determinants have stronger effects on 'her' divorce than on 'his' divorce" (p. 201). These arguments lead to the following hypothesis:

H2: The work-related health limitations of husbands are more strongly related to the risk of marital dissolution than are the work-related health limitations of wives.

#### *Education as a Moderator*

Previous literature has consistently found that education moderates the relationship between stresses associated with undesirable life events and physical and emotional distress. In the

vulnerability-stress-adaptation model that Karney and Bradbury (1995) posited, education operates as a protective resource by reducing the perceived and actual stress associated with a crisis. Specifically, individuals with more education are better able to withstand the negative consequences of stressful life events (Grzywacz, Almeida, Neupert, & Ettner, 2004; McLeod & Kessler, 1990; Thoits, 2006). Not only do individuals with more education possess more financial resources to deal with stress; they possess better coping strategies for combating stress (Mirowsky & Ross, 2003; Pearlin & Schooler, 1978; Ross & Wu, 1995). As a consequence, more educated individuals are better able to successfully negotiate the demands placed on them by undesirable life course events, such as the occurrence of work-related health limitations. In part, this may explain why, in general, more educated individuals are less likely to divorce (Martin, 2006; Teachman, 2002). Following those points, the next hypothesis is:

H3: The positive relationship between work-related health limitations and risk of divorce will be attenuated among individuals with more education.

#### *Race as a Moderator*

A growing body of research has found that the predictors of divorce are not the same for Whites and Blacks (Phillips & Sweeney, 2005; Sweeney & Phillips, 2004; Teachman & Tedrow, 2008). Although there are fewer conventional predictors of marital dissolution that are statistically significant for Blacks, there is evidence to suggest that the economic conditions surrounding marriage are more important for Blacks than for Whites (Bulcroft & Bulcroft, 1993; Orbuch, House, Mero, & Webster, 1996). This pattern is accompanied by the fact that marriages among Blacks generally evidence lower marital quality (Adelman, Chadwick, & Baerger, 1996; Bulanda & Brown, 2006; Corra et al., 2009) and higher rates of marital dissolution (Teachman, 2002). As a consequence, because their unions are already more fragile and they may lack the coping strategies and resources available to Whites, work-related health limitations may do more to weaken the marital relationships of Blacks. These observations lead to the following hypothesis:

H4: The effect of work-related health limitations on marital dissolution is stronger for Blacks than for Whites.

I tested the preceding hypotheses using data taken from the NLSY-79. To reduce the likelihood that differences in the likelihood of divorce associated with work-related health limitations may occur as a result of differences on known factors related to divorce, I implemented controls for a number of covariates that have been linked to both health and the risk of divorce (Becker et al., 1977; Bumpass et al., 1991; Holley, Yabiku, & Benin, 2006; Lundquist, 2006; Schoen et al., 2002; Teachman & Tedrow, 2008; White 1990). These covariates include indicators of military service (for men), age at marriage, a measure of cognitive performance, marital duration, religion, mother's education, stability of parental marriage, age, premarital cohabitation, number of siblings, presence of children living in the household, current school enrollment, and education.

## METHOD

### Data

Starting in 1979, the NLSY-79 interviewed 12,686 men and women between the ages of 14 and 21. The respondents in the sample were interviewed a maximum of 21 times over a period spanning 25 years (interviews were annual through 1994 and biennial thereafter) between 1979 and 2004. In the analysis, I considered respondents who married for the first time between the years 1979 and 2004. I excluded respondents who married prior to the beginning of the survey ( $n = 1,352$ , or 11% of the original sample) and thus were missing information on several time-varying covariates prior to 1979 (e.g., highest grade completed, income).

Because I employed a discrete-time event history model, I created a database consisting of person-years in which respondents contribute a person-year for each round of the NLSY-79 in which they were married and interviewed. Respondents exited the sample when they experienced marital disruption (either separation lasting more than one year or a divorce). If a respondent was not interviewed in a particular year but was interviewed in a subsequent year, I used retrospective information collected by the NLSY-79 to complete information for the

missing person-year. Respondents who were permanently lost to follow-up, either because they could not be tracked or because of changes in the sampling frame of the NLSY-79, contributed person-years until they exited the survey. I created separate databases for four race-gender groups: White men ( $n = 2,469$  individuals yielding 18,636 intervals), Black men ( $n = 1,508$  individuals yielding 11,179 intervals), White women ( $n = 2,437$  individuals yielding 19,696 intervals), and Black women ( $n = 1,505$  individuals yielding 11,319 intervals).

The dependent variable was a binary measurement indicating whether a respondent divorced or separated in the interval between survey rounds ( $0 = \text{did not divorce or separate}$ , and  $1 = \text{divorced or separated}$ ). Respondents who divorced or separated in an interval were dropped from subsequent intervals. The primary independent variable was time varying and measured work-related health limitations. I created two dummy variables based on two questions asked of all respondents in each of the survey years. Both questions reflect health as it is related to participation in the labor market. The first question is "[Are you/would you be] limited in the kind of work you [could] do on a job for pay because of your health?" The second question is "[Are you/would you be] limited in the amount of work you [could] do because of your health?" Respondents could answer yes or no to both questions. Both questions refer to capacity to work in the labor market and were thus salient to respondents of the ages considered here. It is important to note that respondents could move between health statuses over time (from being limited to not being limited, and vice versa).

The first dummy variable based on the two questions indicated respondents who are limited in the kind of work that they can perform but not in amount ( $1 = \text{yes}$ , and  $0 = \text{no}$ ). The second dummy variable indicated respondents who were limited in the amount of work they could perform, irrespective of whether they are limited in the kind of work they can perform ( $1 = \text{yes}$ , and  $0 = \text{no}$ ). The vast majority of respondents who noted that they were limited in the amount of work they could perform also noted that they were limited in the kind of work they could do. In contrast, individuals who noted limitations in the kind of work they could perform were much more variable in noting limitations in the amount of work they could do.

This pattern implies that respondents limited in the amount of work they could perform faced more substantial health limitations than respondents who noted only a limitation in kind of work they could perform.

As indicated earlier, I controlled for a number of covariates well known to be related to the risk of divorce. I used several time-varying indicators to control for income and economic stability, known to be strongly linked to marital stability (Becker, Landes, & Michael, 1977; Brines & Joyner, 1999; Ono, 1998). The income of both spouses in the prior year, from all sources (e.g., wages, transfer payments, interest on investments) and adjusted for inflation using an average of 1983–1984 dollars, was measured as its natural logarithm. Following Rogers (2004), who argued for the importance of spouses' income ratio in determining the risk of divorce, I also included two dummy variables indicating the ratio of husband's to wife's earned income. Consistent with Roger's approach, the first dummy variable indicated whether the husband made less than 40% of the couple's total income, and the second dummy variable indicated whether the husband made more than 60% of the couples' total income. The omitted category consisted of marriages in which the husband made between 40% and 60% of the couple's total income.

Additional time-varying covariates included highest grade of education completed as of the beginning of each interval, the number of children residing in the household at the beginning of each interval, and a dummy variable indicating whether the respondent was enrolled in school during May of each interval (0 = *no*, and 1 = *yes*). I also controlled for a number of fixed covariates, including mother's education measured as years of schooling completed as of 1979, mental aptitude of the respondent measured as his or her score on the Armed Forces Qualifying Test (AFQT) measured in 1980 (for a justification of this variable, see Holley et al., 2006), and number of siblings measured in 1979. A series of dummy variables controlled for whether the respondent was raised by both parents until age 18, was born in the 1960s versus earlier, cohabited with anyone prior to marriage, or was raised in a rural area (in all cases 0 = *no*, and 1 = *yes*). Religion was measured as a series of dummy variables (0 = *no*, and 1 = *yes*): Catholic, none, and other. Protestant constituted the omitted category.

Because rates of marital dissolution may vary significantly, and nonlinearly, by duration, I included a measure of marital duration and its square. Finally, I included several time-varying dummy variables tapping different components of military service. The variables measured current active duty service, currently a veteran of active duty service, current reserve duty service, and currently a veteran of reserve duty service. I also separated current active duty service into currently serving in the army and currently serving in any other branch of the military (for a justification, see Teachman & Tedrow, 2008). In all cases, the dummy variables were coded 1 if the condition holds and 0 otherwise. Because too few women served in the military to obtain stable parameter estimates, the variables measuring military service were included only in the models for men.

#### *Analytic Strategy*

I used discrete-time event history models to examine the relationship between work-related health limitations and marital dissolution using the data taken from the NLSY-79. That is, for the sample of person-years, I applied a logistic regression procedure to the person-year file to ascertain the effects of the measured covariates on the risk of divorcing in a given interval. The discrete-time event history model was appropriate for this analysis because it easily takes into account the effects of covariates that vary across time (e.g., highest grade completed, income, number of children) and allowed me to make use of censored observations (i.e., observations for individuals who had not experienced divorce by the end of the study but were at risk of divorce until the study ended).

The model I estimated is of the following general form and takes into account the fact that all eligible members of a household are interviewed:

$$\text{Logit}_{iht} = u_1 \text{Duration}_{iht} + u_2 \text{Duration}_{iht}^2 + \delta X_{iht} + \gamma_1 W_{iht} + \gamma_2 V_{ih}$$

where Logit represents the logarithm of the conditional odds that individual *i* from household *h* will divorce at duration *t*. Duration<sub>ih*t*</sub> indicates the marital duration of the respondent in person-year *t* (Duration<sub>ih*t*</sub><sup>2</sup> is the square of marital

duration, allowing a nonlinear relationship with divorce);  $X_{iht}$  represents a set of time-varying dummy variables indicating whether respondent  $i$  from household  $h$  suffers from a health limitation as of the beginning of person-year  $t$ ;  $W_{iht}$  represents a vector of time-varying control variables for person  $i$  in household  $h$  at time  $t$ ;  $V_{ih}$  represents a vector of fixed control variables for person  $i$  in household  $h$ ; and  $u_1$ ,  $u_2$ ,  $\delta$ ,  $\gamma_1$ , and  $\gamma_2$  are coefficients or vectors of coefficients to be estimated.

This equation was estimated using a logistic regression procedure available in PROC GENMOD of SAS. An important feature available in PROC GENMOD is the ability to estimate models when the data are clustered (e.g., when there are likely correlations in the dependent variable across members of a cluster). Because the NLSY-79 is a household survey, it includes numerous clusters of siblings (i.e., there are several values of  $i$  within a certain value of  $h$ ), I used this feature of PROC GENMOD to estimate models that correct for correlations in clusters of siblings (see Allison, 1995).

## RESULTS

### *Descriptive Statistics*

Table 1 shows weighted descriptive statistics for respondents separately according to race and gender. The values presented are for person-years and represent the average value for each variable over all the person-years included for a particular race-gender group. As expected from past research, Blacks were more likely to divorce or separate in a given interval than were Whites. Women reported more work-related health limitations in ability to work than did men. Differences in work-related health limitations according to race were generally small and inconsistent. The control variables also indicated the expected race and gender differences in income, with men earning more than women and Whites earning more than Blacks.

For each race-gender group, individuals were more likely to note that they had a limitation in the kind of work they could perform than a limitation in the amount of work that they could do. Overall, the percentage of intervals in which health limited work was not high, ranging from a low of 0.9% (limitation in the amount of work for Black men) to a high of 4% (limitation in the kind of work for Black women). This pattern

was not unexpected, given the young age of the respondents in the NLSY-79. The number of individuals experiencing a work-related health limitation was not inconsequential, however. For White men, 134 (5.4%) and 205 (8.3%) of the 2,469 respondents indicated health limitations in amount or kind, respectively, at some time during their marriage (data not shown). For Black men, the corresponding numbers of respondents who reported a work-related health limitation was 58 (3.9%) and 153 (10.2%) of 1,508 respondents. For White women, the corresponding numbers were 247 (10.1%) and 410 (16.8%) of 2,437 respondents. For Black women, the numbers were 117 (7.8%) and 277 (18.4%) of 1,505 respondents.

### *Multivariate Results*

Table 2 shows multivariate results. Separate models are shown for each race-gender group. Preliminary analyses (not shown) indicated that separate models for each race-gender group were justified. Consistent with expectations outlined earlier that race and gender modified the relationship between work-related health limitations and risk of divorce, a Chow test, which compared a model with all coefficients constrained to be equal across all four groups to the four separate models, yielded a value of 139.8 with  $df = 26$  ( $p < .001$ ), thus providing evidence that race and gender did modify the focal relationship.

For each race-gender group, two models are shown. The first model included the measures of work-related limitations in health and the control variables. The second model added terms for the interaction between work-related limitations in health and level of education. The coefficients (e.g.,  $b$ ) shown represent the additive effect of the variable in question on the log of the odds that marital disruption will occur. To interpret effects in terms of the percentage change in the odds of marital dissolution, the following transformation may be used:  $(\exp(b) - 1) \times 100$ .

The results from Model 1 indicated only limited support for Hypothesis 1, which stated that couples in which at least one spouse experienced poor health would be more likely to dissolve their marriage. None of the coefficients for limitations in amount of work were statistically significant. However, the fact that marriages in which White men were limited

Table 1. Descriptive Statistics for NLSY-79 Samples of Men and Women Used in the Analysis of the Relationship Between Health Limitations and Marital Dissolution (N = 7,919)

Variable	Men				Women			
	Whites n = 2,469		Blacks n = 1,508		Whites n = 2,437		Blacks n = 1,505	
	M	SD	M	SD	M	SD	M	SD
Limitation in kind of work (%)	2.08		2.28		3.46		4.08	
Limitation in amount of work (%)	1.17		0.92		1.90		1.38	
Divorced in interval (%)	3.98		5.99		4.13		6.67	
Active duty army (%)	1.13		4.20		—		—	
Active duty other military service (%)	2.72		3.86		—		—	
Veteran of active duty (%)	9.30		15.45		—		—	
Reserve duty	1.76		3.17		—		—	
Veteran of reserve duty (%)	3.65		6.42		—		—	
Income	25,879	85,027	16,663	48,166	10,007	12,352	9,069	38,547
Income of spouse	7,540	9,562	6,345	8,712	18,240	16,201	10,965	13,052
Earn 40% or less of family income (%)	8.61		12.95		25.39		25.45	
Earn 60% or more of family income (%)	49.32		52.41		27.27		35.84	
Age at marriage	24.76	4.02	25.07	4.38	23.49	4.04	23.75	4.59
AFQT score	57.72	28.04	30.66	25.84	56.04	25.79	27.91	22.27
Years married	6.79	5.14	6.37	4.98	6.98	5.20	6.26	4.99
Catholic (%)	33.19		38.98		35.27		41.26	
No religion (%)	4.12		3.57		3.07		2.13	
Other religion (%)	12.68		7.94		12.76		8.41	
Mother's education	12.06	2.33	10.30	3.63	12.09	2.32	9.80	3.49
Lived with both biological parents (%)	83.49		59.59		82.96		59.49	
Born after 1959 (%)	43.74		45.16		51.51		55.19	
Cohabited before marriage (%)	21.52		24.45		23.46		19.24	
Number of siblings	3.02	1.98	4.66	3.01	3.04	1.91	4.64	3.08
Number of children in the household	1.33	1.15	1.52	1.24	1.32	1.13	1.62	1.22
Enrolled in school (%)	5.17		4.56		5.64		6.31	
Highest grade of schooling obtained	13.56	2.55	12.66	2.51	13.67	2.32	12.90	2.29
Number of person-years	18,636		11,179		19,696		11,319	

in the kind of work they could do were more likely to end in divorce provides partial support for Hypothesis 1. White men who noted a limitation in the kind of work they can do were 63.4% ( $\exp[.491] - 1 \times 100 = 63.4$ ) more likely to experience marital dissolution in any given interval.

More consistent support was found for Hypothesis 2, which argued that the poor health of husbands would be more strongly related to the risk of marital dissolution than would the poor health of wives. Specifically, none of the relationships between work-related health limitations and marital disruption was statistically significant for women. This lack of statistically significant effects remained the case even when considering the results from Model 2.

The results from Model 2 demonstrated an interaction between level of education and the work-related health limitations of men. Figures 1 and 2 illustrate the nature of the interaction effects for White men and Black men, respectively. In the figures, I plotted the probability of marital dissolution for each of four marital durations (5 years, 10 years, 15 years, and 20 years) by three different educational levels (8 years, 12 years, and 16 years). I did this separately according to three categories of work-related health limitations: no limitations, limitations in kind of work, and limitations in amount of work.

The probabilities of marital dissolution were evaluated at the following covariate values for each race-gender group: respondent was not in the military and was not a veteran of

Table 2. Multivariate Results for Discrete-Time Event History Models of the Log Odds of Marital Dissolution: NLSY-79 Samples of Men and Women by Race (N = 7,919)

Variables	Men				Women			
	Whites n = 2,469		Blacks n = 1,508		Whites n = 2,437		Blacks n = 1,505	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
	$\beta/SE(\beta)$	$\beta/SE(\beta)$	$\beta/SE(\beta)$	$\beta/SE(\beta)$	$\beta/SE(\beta)$	$\beta/SE(\beta)$	$\beta/SE(\beta)$	$\beta/SE(\beta)$
Limitation in amount of work	0.137 (.247)	0.190 (1.072)	-0.308 (.319)	-0.539 (1.722)	-0.157 (.199)	-1.200 (1.092)	-0.031 (.201)	-0.878 (.940)
Limitation in kind of work	0.491 <sup>†</sup> (.266)	-3.141* (1.206)	-0.549 (.595)	2.989* (1.072)	-0.030 (.235)	1.352 (1.219)	-0.085 (.347)	1.083 (2.077)
Education × Limitation in amount of work		-0.005 (.087)		0.020 (.143)		0.084 (.085)		0.007 (.075)
Education × Limitation in kind of work		0.285* (.089)		-0.324* (.126)		-0.111 (.096)		-0.094 (.167)
Constant	0.117	0.164	-0.358	-0.413	0.130	0.132	-0.903*	-0.787*
% of intervals ending in divorce		4.34		4.45		5.89		6.40
Log likelihood	-3,170.3	-3,166.7	-2,447.9	-2,446.2	-3,421.1	-3,420.2	-2,595.9	-2,595.5

Note: N (n) refers to number of individuals, not number of intervals. See the text for the corresponding number of intervals. Controls are active duty army, active duty other military service, veteran of active duty, reserve duty service, veteran of reserve duty, log of income, log of income of spouse, earn 40% or less of family income, earn 60% or more of family income, age at marriage, AFQT score, years married, years married squared, Catholic, no religion, other religion, mother's education, lived with both biological parents while growing up, born after 1959, cohabited before marriage, number of siblings, number of children in the household, enrolled in school, and highest grade of schooling obtained (omitted from the table).

<sup>†</sup>p < .10. \*p < .05.

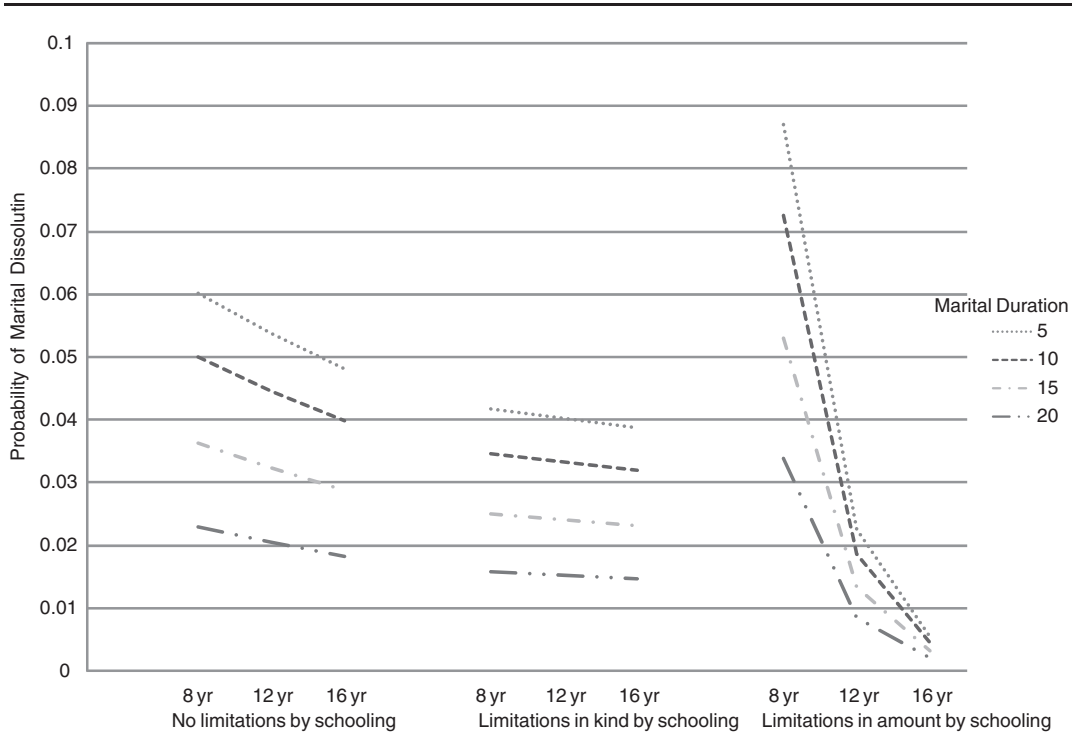
the military, respondent possessed the average value of income and spouse income, respondent made between 40% and 60% of family income, respondent married at the average age, respondent scored the average AFQT, respondent was a Protestant, respondent's mother possessed the average level of education, respondent lived with both biological parents at age 18, respondent did not cohabit prior to marriage, respondent had the average number of siblings, respondent had the average number of children, and respondent was not enrolled in school. Other covariate patterns would have yielded different probabilities of marital dissolution, but the shift in probabilities would have been uniform across the categories shown in the figures. That is, the lines shown in the figures would have been shifted upward or downward, but the relative position of the lines would not have changed.

For Black men (Figure 1), the results were consistent with Hypothesis 3, which stated that the positive relationship between poor

health and risk of divorce would be attenuated among individuals with more education. There was a positive effect of work-related health limitations on marital disruption that was strongly attenuated by level of education. For White men, there was also a statistically significant interaction between work-related health limitations and level of education. According to Figure 2, however, the nature of the interaction was contrary to Hypothesis 3 in that the risk of divorce rose steeply with level of education obtained. That is, rather than attenuating the relationship between work-related health conditions, education accentuated this relationship among White men.

Finally, the results provided no support for Hypothesis 4, which stated that the effect of health limitations on marital dissolution would be stronger for Blacks than for Whites. There was no clear evidence that the effects of work-related health limitations on divorce were stronger for Blacks. Indeed, Hypothesis 4 was misguided in that it failed to anticipate the

FIGURE 1. PROBABILITY OF MARITAL DISSOLUTION BY MARITAL DURATION, HEALTH LIMITATION, AND LEVEL OF EDUCATION: BLACK MEN



fact that the relationship between work-related health limitations and marital stability would operate in different directions for Whites and Blacks.

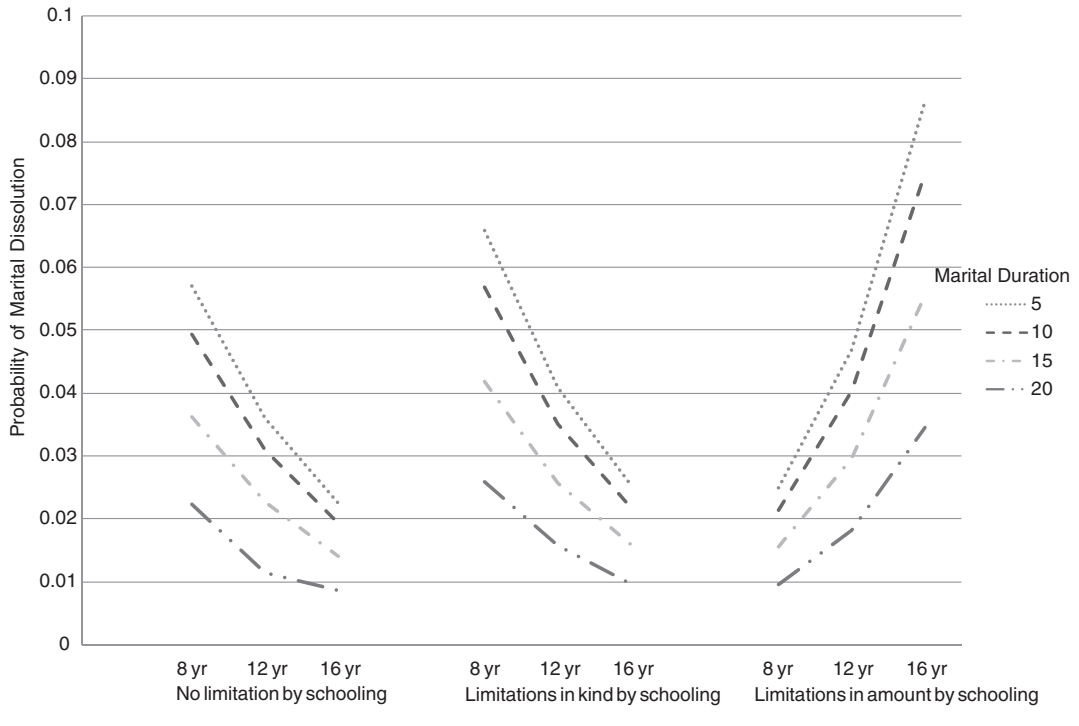
*Additional Considerations*

I extended the analysis by estimating a number of additional models. First, to ensure the proper ordering of events to better estimate the effects of work-related health limitations on marital dissolution, I eliminated any cases in which a health limitation was noted prior to marriage. In addition, I used information about the timing of the onset of each spell of a health limitation to determine its duration at the beginning of each interval (thus ensuring that spells of a health limitation predated an interval in which marital dissolution may occur). Models estimated using this slightly smaller sample (excluding cases in which the respondent noted a work-related health limitation at the time of marriage) and with a control for duration of the current spell of a health limitation did not provide results that

were substantively different from those reported in Table 2 (results not shown). The consistency of results across different samples and models strengthens faith in the notion that work-related health limitations led to marital instability rather than the converse.

Second, I attempted to determine whether changes in income related to work-related health limitations could explain the effect of health limitations. To accomplish that task, I included both current and lagged values (lagged one interval) of respondent's income in each model. I also estimated a model that included a measure of the respondent's current income and amount of change from the previous interval's income. In neither case did the control for prior income or income change explain the relationship between work-related health limitations and marital dissolution (results not shown). The findings provided no support for the notion that shifts in income were responsible for the relationship between work-related health limitations and divorce.

FIGURE 2. PROBABILITY OF MARITAL DISSOLUTION BY MARITAL DURATION, HEALTH LIMITATION, AND LEVEL OF EDUCATION: WHITE MEN



## DISCUSSION

Consistent with expectations, there was a relationship between work-related health limitations and risk of marital disruption, and that relationship was restricted to the health limitations of husbands. Work-related health limitations that wives faced did not affect the risk of marital dissolution. In addition, level of education moderated the relationship between limitations in kind of work and marital instability. However, the direction of the moderated relationship differed for White and Black men. For Blacks, education reduced the effect of work limitations, whereas the opposite was true for Whites. Finally, contrary to expectations, there was no evidence to suggest that the relationship between work-related health limitations and marital dissolution was any weaker for Blacks than for Whites. Even though not all of the stated hypotheses were supported, the overall results point to the importance of health as an overlooked component of marriages that affects their stability. Prior research has largely ignored health as a factor

affecting marital instability, even though it is a concern for Americans of all ages.

Although the purpose of this article was not to adjudicate between different theoretical perspectives, the results have shed some light on potential mechanisms. First, the results did not indicate that changes in economic conditions associated with health limitations were the source of increased risk of marital disruption. Rather, the source of this relationship was more likely to be found in noneconomic factors linked to marital functioning. Second, the fact that only health limitations among men affected risk of marital dissolution suggested that factors linked to the gendered nature of marital functioning would be important to isolate. Third, the fact that limitations in kind of work but not limitations in amount of work were related to marital instability suggested the importance of more transient components of health for marital uncertainty. Prior research has found that physical disabilities occurring after marriage are not related to marital satisfaction (Yorgason et al., 2008) or divorce (Charles & Stephens,

2004). The extent to which limitations in the amount of work that can be performed, compared to limitations in kind of work, were more closely representing stable, chronic disabilities may explain the lack of association with marital dissolution.

Even contrary findings may be useful for directing subsequent research. Specifically, the relationship between work-related health limitations and risk of marital dissolution was moderated by education in the expected direction for Black men but not White men. I suggest several possibilities that future research might consider in explaining these divergent patterns. First, the measures of work-related health limitations used were very broad. Respondents in the NLSY-79 were asked simply whether their health limited the kind and amount of work they could perform. It may be that the health limitations experienced by men in the relatively young ages covered in the NLSY-79 were linked to the type of work they performed, and type of work has been strongly tied to race and education (Kaufmann, 2002; Kerckhoff, Raudenbusch, & Glennie, 2001; Thomaskovic-Devey et al., 2006). Because they were more likely to occupy relatively safe and physically nondemanding occupations that can be performed with minor physical impairments, White men who noted a work-related health limitation may have suffered from more substantial health problems that have more dramatic consequences for their marriages. If this scenario is correct, it suggests that intensity of health concerns is an important concern for marital instability.

Another alternative, not necessarily independent of the first, is that work-related health limitations experienced by more educated White men were more disruptive of career plans. This disruption may have occurred not only because of differences in the nature of their work-related health limitations but also because of higher expectations for both occupational attainment and educational attainment on the part of more highly educated White men and their spouses. Such disruptions may represent greater variability in the linkages between expected and actual marital outcomes among Whites, thereby representing a greater degree of postmarital uncertainty in their marriages. This scenario supports the theoretical notion that degree of unexpected disruption experienced in a marriage is important for determining marital instability.

A third alternative rests in the nature of the expected division of labor in Black and White marriages with more highly educated spouses. It may be that at higher levels of education White women may be less tolerant than Black women of their husband's inability to share more fully in necessary work—home tasks. In part, this may stem from the fact that historically Black women have been more likely than White women to be economic providers when married (Broman, 1991). Other evidence has indicated that Black women experienced lower levels of distress when family and work obligations interfered with each other (Marcussen & Piatt, 2005), thus placing less stress on their relationships. The findings imply that the health of husbands may not be as consequential for the marriages of Black women as for White women because the economic and social resources available to them are not as closely tied to marriage. This scenario points to the importance of marital dynamics in moderating the effect of health limitations on marital instability.

#### *Limitations*

There are several limitations to the current analysis that subsequent research needs to correct. First, the information about health in the NLSY-79 was limited to one spouse in a marriage. There was no information available about the potential impact on marital stability of having both spouses ill. Second, better indicators of work-related health limitations, perhaps specific to particular domains of married life, are necessary. As noted earlier, such information may be valuable in determining why the relationship between health limitations and health was so different for Black and White men. Third, the NLSY-79 did not contain measures of marital quality or functioning or indicators of the household division of labor. This made it difficult to ascertain the proximate mechanisms through which the poor health of husbands affected marital stability, thus making it difficult to adjudicate between different theoretical alternatives. I was able to determine, however, that changes in income associated with health limitations were not a mediating factor.

Finally, the current study could not fully eliminate the possibility that endogeneity of health status generated results. Prior research has shown that exogenous changes in marital quality can lead to changes in health. In particular,

poor marital quality can lead to declines in both physical and emotional health (Umberson, Williams, Powers, Chen, & Campbell, 2005; Umberson, Williams, Powers, Liu, & Neeham, 2006; Wickrama, Lorenz, Conger, & Elder, 1997; Williams, Sassler, & Nicholson, 2008). Consequently, the apparent relationship between health limitations and marital quality may involve causality that runs in both directions. Although this is a possibility that subsequent research should seek to address in greater depth, the fact that a control for duration of any health limitation failed to change the observed relationship reduced the likelihood that endogeneity is a problem. In addition, the fact that the observed relationship appeared only for men is not consistent with the notion of endogeneity. Both men and women have been shown to be equally susceptible to declines in health that appear as a result of poor marital quality (Umberson, Williams, Powers, Liu et al., 2006). In addition, in the same relationship, women have generally reported lower levels of marital quality than men (Umberson, Williams, Powers, Chen et al., 2005). Thus, if poor marital quality generated the observed declines in health, one would expect that this relationship would have occurred for both men and women, and perhaps more strongly for women.

### Conclusion

I have presented research investigating the linkage between work-related health limitations and marital stability. Using data taken from the NLSY-79 covering a span of 25 years, I found that work-related limitations in the health of husbands but not wives affected marital dissolution. Limitations in the kind of work that can be performed, but not limitations in amount of work, increased the risk of marital disruption. Education moderated this relationship, however. For Black men, higher education attenuated the effect of health limitations on marital dissolution. For White men, higher education strengthened the effect of health limitations on divorce.

The results extend prior research on marital stability by expanding the range of factors tied to the uncertainty that couples face when they form marital unions. Poor health can operate as a shock to the economic, social, and emotional balance that couples negotiate. That this shock results only in divorce as a result of the

reduced health of husbands is a testament to the continued gendered nature of marriages. The results also speak to the importance of education in determining the nature of negotiations that occur in marriage. As indicated by prior research, education sets the context for evaluation of other components of the marital bargain evaluated (Martin, 2006; Martin & Parashar, 2006; South, 2001).

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